

Począwszy od IX tomu niniejszego wydawnictwa wprowadzamy w sposobie wydawania zmiany następujące:

1) Dla uniknięcia nieporozumień bibliograficznych zostaje zniesiona podwójność tytułu wydawnictwa i nadal utrzymuje się jedynie tytuł łaciński (*Annales Musei Zoologici Polonici*).

2) Zamiast dotychczasowych 4 zeszytów, wychodzących w ciągu roku, każda praca będzie wydawana w postaci oddzielnego numeru.

3) 30 — 35 arkuszy druku tworzyć będzie tom, do którego zostanie dodana karta tytułowa i spis rzeczy. Numeracja stron będzie ciągła w granicach każdego tomu.

4) Sprawozdania, wiadomości bieżące z Muzeum, nekrologi i t. p., zamieszczane dotąd w „Pracach Państwowego Muzeum Zoologicznego”, zostaną wydzielone w wydawnictwo odrębne, ukazujące się w postaci jednego zeszytu w początku każdego roku p. t. „Sprawozdanie Państwowego Muzeum Zoologicznego”.

REDAKCJA.

A partir du volume IX de la publication ci-présente nous introduisons dans la manière de la publier les changements suivants:

1) Pour éviter les malentendus bibliographiques le double titre de cette publication est supprimé et subsiste uniquement le titre latin (*Annales Musei Zoologici Polonici*).

2) Au lieu de 4 livraisons paraissantes jusqu'ici au cours de l'année, chaque travail à présent sera publié sous forme de fascicule séparé.

3) 30 — 35 feuilles d'impression formeront le volume, auquel sera ajouté un frontispice avec une table des matières. La pagination sera continu dans les limites du chaque volume.

4) Les compte-rendus, les informations courrantes du Musée, les nécrologes etc., qui ont été publiés jusqu'ici dans les „*Annales Musei Zoologici Polonici*“, à présent seront réunis dans une publication spéciale, paraissante au commencement de chaque année sous forme d'une livraison s. t. „*Sprawozdanie Państwowego Muzeum Zoologicznego*“.

LA RÉDACTION.

Tadeusz JACZEWSKI.

Uwagi o amerykańskich gatunkach rodzaju *Mesovelvia* Muls. (*Heteroptera*, *Mesoveliidae*).

Notes on the American Species of the Genus *Mesovelvia* Muls. (*Heteroptera*, *Mesoveliidae*).

[Pl. I—III].

Since the publication of my paper on the *Mesoveliidae* from the South Brazilian State of Paraná ¹⁾ I had the opportunity to study a much more ample material of various American representatives of the genus *Mesovelvia* Muls., particularly of the species *M. mulsanti* B. White. The present supplementary notes are the result of these investigations.

The first American species of the genus *Mesovelvia* Muls. which has been discovered was *M. mulsanti* B. White, described in 1879 after specimens from the Rio Purus in the basin of the Amazonas ²⁾.

Five years later, in 1884, Uhler described his *M. bisignata*, based originally upon specimens from the Eastern U. S. ³⁾.

In 1898 Champion placed *M. bisignata* Uhl. as a synonym of *M. mulsanti* B. White, although apparently without having performed more detailed morphological studies in this regard ⁴⁾.

The question of the specific identity or distinctness of these two forms, i. e. the South American *M. mulsanti* B. White and

¹⁾ Ann. Mus. Zool. Pol., Warszawa, VII, 1928, pp. 75—80, pl. IV.

²⁾ Trans. Ent. Soc., London, 1879, pp. 268—269.

³⁾ Kingsley Stand. Nat. Hist., II, Boston, 1884, p. 273, fig. 324.

⁴⁾ Biol. C. Amer., Het. II, London, 1898, p. 123, Tab. VIII, fig. 10—11.

the North American *M. bisignata* Uhl., has not been much investigated afterwards, but more recent authors are inclined, as a rule, to admit them to be conspecific. This opinion seems to be correct in general, and the matter is discussed further hereunder with more details.

In 1894 Uhler described his *M. amoena*, from the Island of Grenada ¹⁾, a second American species of the genus, much smaller in size than *M. mulsanti* B. White. This species seems to be very little known till present. It is not mentioned by Champion in the „Biologia Centrali Americana“, although volume II of this work is dated 1897 — 1901, and in particular the sheet on which the genus *Mesovelgia* Muls. is treated bears the date 1898. Horváth in his important monograph of the *Mesoveliidae* limits himself to the statement that he has not been able to examine specimens of *M. amoena* Uhl. ²⁾. Recently Blatchley records this species from Dunedin, Fla., U. S. A. ³⁾.

A few years ago, in 1924, two new American species of *Mesovelgia* Muls. have been described by Hungerford, viz.: *M. douglasensis* ⁴⁾ and *M. cryptophila* ⁵⁾, both from Douglas Lake, Mich., U. S. A. It is possible that the first of these two species will prove to be identical with *M. amoena* Uhl.

To the above species I have added in 1928 a new South American species, *M. bila* Jacz. from the South Brazilian State of Paraná ⁶⁾.

Our present knowledge comprises thus the following five American species of the genus *Mesovelgia* Muls.:

M. mulsanti B. White, 1879.

M. cryptophila Hung., 1924.

M. bila Jacz., 1928.

M. douglasensis Hung., 1924.

M. amoena Uhl., 1894.

¹⁾ Proc. Zool. Soc., London, 1894, p. 218.

²⁾ Ann. Mus. Nat. Hung., Budapest, XIII, 1915, p. 554.

³⁾ Heteroptera or true bugs of Eastern North America, Indianapolis, 1926, pp. 615 — 616.

⁴⁾ Canad. Entom., Orillia, LVI, 1924, pp. 142—144.

⁵⁾ Ann. Ent. Soc. Amer., Columbus, Ohio, XVII, 1924, pp. 453—456

⁶⁾ L. c., pp. 77—79, pl. IV, fig. 10—13.

In case the last two species will prove to be identical, *M. douglasensis* Hung. will have to be suppressed as a synonym of *M. amoena* Uhl., and the above five species will be reduced to four only.

Key to the American Species of *Mesovelvia* Muls.

1. Front and middle femora armed beneath with a row of black spines. ♂♂ with two black tufts of minute spines on the ventral side of the eighth abdominal segment ("first genital segment"). Length over 3 mm. *M. mulsanti* B. White.
 - Front and middle femora without a row of black spines beneath. ♂♂ without black tufts on the ventral side of the eighth abdominal segment. Length not over 3 mm. 2.
 2. Rostrum reaching the intermediate coxae. ♂♂ with two black tufts of minute spines on the posterior margin of the seventh abdominal sternite. (First joint of the antennae longer than half of the length of the terminal joint. ♂♂ with a fringe of spines along the posterior margin of the sixth abdominal sternite). *M. bila* Jacz.
 - Rostrum reaching nearly to the apex of the hind coxae. ♂♂ showing no black tufts on the posterior margin of the seventh abdominal sternite. 3.
 3. First joint of the antennae a little shorter than half of the length of the terminal joint. ♂♂ with a fringe of spines along the posterior margin of the sixth abdominal sternite. *M. douglasensis* Hung.
 - First joint of the antennae longer than half of the length of the terminal joint. ♂♂ lacking the fringe of spines along the posterior margin of the sixth abdominal sternite *M. cryptophila* Hung.
- M. amoena* Uhl. of which no ♂♂ were available for examination is not included in the above key.

Mesovelvia mulsanti B. White, 1879.

Mesovelvia Mulsanti B. White, Trans. Ent. Soc., London, 1879, pp. 268-269.

Mesovelvia bisignata Uhler, Kingsley Stand. Nat. Hist., II, Boston 1884, p. 273, fig. 324.

Mesovelgia mulsanti Champion, Biol. Centr. Amer., Het. II, London, 1898, p. 123, Tab. VIII, fig. 10—11.

Mesovelgia Mulsanti Horváth, Ann. Mus. Nat. Hung., Budapest, XIII, 1915, pp. 548—550, fig. 5.

Mesovelgia mulsanti Jaczewski, Ann. Mus. Zool. Pol., Warszawa, VII, 1928, pp. 75—77, pl. IV, fig. 1—9.

In my paper on the *Mesoveliidae* from the State of Paraná (l. c.) I have given a brief account on some differences which I was able to find between South American (State of Paraná) and North American (Douglas Lake, Mich.) specimens of this species. I have also expressed the supposition that the American *Mesoveliae* in which the ♂♂ possess a pair of black tufts on the underside of the eighth abdominal segment belong to more than one species.

Since that time I had the opportunity to examine and to dissect a considerable number of specimens of *M. mulsanti* B. White from various North, Central and South American localities, including an original paratype of B. White, as well as almost all the specimens which are recorded by Champion in the „Biologia Centrali Americana“. Topotypical material to Uhler's *M. bisignata* has also been examined. For having placed at my disposal these specimens I am most indebted to Mr. W. E. China, who has sent me kindly the material of the British Museum, as well as the mentioned paratype, which belongs to the Perth Museum (Scotland), to Dr. G. Horváth, who was kind enough to send me some North American specimens from the collection of the Hungarian National Museum, and to Dr. W. L. McAtee who has sent me kindly a number of specimens from the material of the U. S. National Museum.

During the last summer (July, August and September, 1929) I had the opportunity to collect (together with Dr. T. Wolski) a certain number of specimens of *M. mulsanti* B. White at Habana (Cuba) and in several localities of Central Mexico (Districto Federal and States of Jalisco and Michoacán).

On the base of these investigations I am coming now to the following conclusions.

M. mulsanti B. White, i. e. the American *Mesovelgia* the ♂♂ of which possess a pair of black tufts on the underside of the eighth abdominal segment, should be looked upon as a sin-

gle, although somewhat variable species, distributed over a vast area extending at least from Southern Canada, in the North, to the Central Provinces of the Argentine Republic, in the South.

Within the limits of this large territory the species does not represent, however, a completely uniform type, and at least three, or perhaps even four, local forms could be distinguished.

It appears to be most justified to attribute to these forms the rank of subspecies, as each of them seems to be connected with a more restricted area of distribution of its own, and I would propose to designate them with the following names:

- a. *Mesovelia mulsanti mulsanti* B. White,
- b. *Mesovelia mulsanti bisignata* Uhler,
- c. *Mesovelia mulsanti meridionalis* n. ssp.
- d. *Mesovelia mulsanti caraiba* n. ssp.

The chief differences between these subspecies are found in the shape of the gonapophyses (forcipes, parameres) of the ♂♂¹⁾, and they can be briefly characterized as follows:

a. *M. mulsanti mulsanti* B. White (= *M. mulsanti* B. White, l. c.). Typical subspecies. The original specimens of B. White are unfortunately ♀♀ and no topotypical ♂♂ were available for examination. I am unable thus to give any distinctive morphological characters for this subspecies. It seems most probable that either *M. m. meridionalis* n. ssp. or *M. m. caraiba* n. ssp. will prove to be identical with it. To verify this, however, a dissection of topotypical ♂♂ is absolutely necessary. Type locality: Brazil, State of Amazonas, Rio Purus.

b. *M. mulsanti bisignata* Uhler (= *M. bisignata* Uhler, l. c., *M. mulsanti* of many North American authors). This seems to be the North American subspecies. Gonapophyses of the ♂♂ large and comparatively wide, hook-like [Fig. 1—5; Jaczewski, l. c., fig. 9; Hungerford, Ann. Ent. Soc. Amer., Columbus, Ohio, XVII, 1924, p. 456, fig. II]; the length, width and shape of the terminal processus of the gonapophyses seem to be subjected

¹⁾ The gonapophyses of *M. mulsanti* B. White are not flattened, being hook-like and slightly twisted, and their appearance varies when seen at different angles. All my figures have been drawn after isolated gonapophyses which have assumed a position of stable equilibrium upon a horizontal plane.

to individual variation. I have examined specimens from the following localities: Saanich Dist., Brit. Col. (Brit. Mus.); White Plains, N. Y. (Hung. Mus.); Westfield, N. J. (Brit. Mus.); Ft. Lee Dist., N. J. (Brit. Mus.); Douglas Lake, Mich.; Ag. Coll., Mich. (U. S. N. M.); Douglas Co., Kans. (Brit. Mus.); Opelousas, La. (U. S. N. M.).

c. *M. mulsanti meridionalis* n. ssp. (= *M. mulsanti* Jaczewski, l. c., specimens from the State of Paraná). Apparently the South American subspecies. Gonapophyses of the ♂♂ [Fig. 6; Jaczewski l. c., fig. 6] distinctly narrower than in the preceding subspecies and consequently more strongly convex at their curvature; terminal processus straight. I have examined specimens from the following localities: Villa Ana, F. C. S. Fe, Argentine Republic (Brit. Mus.); Foz do Iguassú and Bacachery near Curitiba, both in the State of Paraná, Brazil. One of the ♂♂ from Bacachery is chosen as the type of this subspecies.

d. *M. mulsanti caraiba* n. ssp. (= *M. mulsanti* Champion, l. c., Central American specimens). This is the Central American subspecies, apparently both insular and continental. The terminal abdominal („genital“) segments of the ♂♂ [compare fig. 22 with fig. 19 - 21], as well as the gonapophyses, are somewhat smaller relatively than in the two preceding subspecies, although the size of the insects is about equal in all cases. The gonapophyses are rather widely hook-like, their terminal processus is often comparatively slender [Fig. 7 - 18]. Specimens from the following localities have been examined: St. Thomas, Virgin Islands (U. S. N. M.); St. Vincent, W. I. (Brit. Mus.); Grenada, W. I. (Brit. Mus., U. S. N. M.); Panama (Brit. Mus.); Habana, Cuba (27 VII 1929, Botanical Garden, in an artificial concrete basin, macropt. 1 ♂, 2 ♀♀, brach. 1 ♂, 3 ♀♀, 1 larva); Mexico, D. F., the Park of Chapultepec (2 VIII 1929, ponds and canals with rich aquatic vegetation, brach. 3 ♂♂, 4 ♀♀, 1 larva); Xochimilco, D. F., Mexico (6 IX 1929, small pools in a forest, brach. 1 ♂, 1 ♀); Ocotlán, Jal., Mexico (6 VIII 1929, pools, brach. 2 ♂♂, 1 ♀); between Chapala, Jal., and Guadalajara, Jal., Mexico (18 VIII 1929, canals along the land-road, macropt. 1 ♀, brach. 1 ♂); Patzcuaro, Mich., Mexico (28 VIII 1929, in pools, macropt. 1 ♂, 1 ♀, brach. 1 ♀, 1 larva, 31 VIII 1929, littoral parts of the lake, shallow water, fairly rich aquatic vegetation, brach. 1 ♂, 3 ♀♀, 1 IX 1929, on the lake, among *Pota-*

mogeton and *Juncus*, brach. 3 ♂♂, 4 ♀♀, 2 larvae). A ♂-specimen labeled „Grenada, Grand Etang (Windward Side) 1900 ft., H. H. Smith“ (Brit. Mus.) is chosen as the type of this subspecies. The continental specimens, as well as those from Habana, seem to be somewhat transitory to *M. mulsanti bisignata* Uh1.

As it has been mentioned already, it is most probable that either *M. mulsanti caraiba* n. ssp. or *M. mulsanti meridionalis* n. ssp. will prove to be a synonym of the typical *M. mulsanti mulsanti* B. White, but it would be possible to verify this only upon an examination of topotypical ♂♂.

The black tufts on the underside of the eighth abdominal segment of the ♂♂ do not offer apparently any distinctive characters for the subspecies. These tufts are most commonly rather small and round in their outline; this was the case in all the specimens of *M. mulsanti meridionalis* n. ssp. which I had the opportunity to examine [Fig. 19]. In *M. mulsanti bisignata* Uh1. the tufts may be also small and round [Fig. 20], but sometimes they are much more strongly developed [Fig. 21, 23]. In *M. mulsanti caraiba* n. ssp. the tufts are very often a little transverse in shape [Fig. 22, 24]. The distance between the two tufts seems to be variable in all the subspecies. In a specimen from Saanich Dist., B. C., an isolated black spinule was found just in the middle between the very strongly developed tufts [Fig. 21].

The distribution of the above four subspecies of *M. mulsanti* B. White is shown on the map on pl. III. To throw more light upon all these questions it would be of much importance to study carefully specimens of *M. mulsanti* B. White from as many different localities as possible, especially from the northern regions of South America.

Mesovelia amoena Uhler, 1894.

Mesovelia amoena Uhler, Proc. Zool. Soc., London, 1894, p. 218.

Uhler's original description of this species was based apparently upon macropterous specimens only. I have been able to examine the original sets of specimens which served as the material for the establishment of the species by Uhler, and which belong to the collections of the British Museum and of the U. S.

National Museum. In the British Museum set I have discovered also some brachypterous specimens which have been possibly looked upon by Uhler as larvae and remained consequently excluded from his description. I have also examined some details of structure which have been left without attention by Uhler. I can thus complete now the original description of *M. amoena* Uhl. with the following additions. Unfortunately not a single ♂-specimen was available for examination, as all specimens which I had before me were ♀ ♀.

Interocular space in the ♀ ♀ more than twice as wide as one eye (10:4). Relative length of the antennal joints, expressed in percentages of the length of the first (basal) joint, appears as follows:

$$1st : 2nd : 3d : 4th = 100 : 72,2 : 166,7 : 216,7$$

The above ratios are practically identical with those found for the antennae of *M. douglasensis* Hung. First joint distinctly shorter than half of the length of the terminal one.

Rostrum reaches nearly the apex of the hind coxae, what does not agree with the statement of Uhler, who says: „rostrum... reaching between the middle coxae“. It may be, however, that the relative length of the rostrum is somewhat variable, especially if compared with the thorax which is less developed in brachypterous specimens.

Length of the thoracic nota in brachypterous specimens [Fig. 25] slightly shorter than the width of the head with eyes. Width of the prothorax by $\frac{1}{6}$ larger than the length of the thoracic nota. Metathorax by $\frac{1}{8}$ wider than the prothorax. Length of the pronotum, measured along the median line, a little shorter than the length of the mesonotum, which is $1\frac{3}{4}$ time as long as the metanotum. Head, seen from above, slightly longer than the pronotum and mesonotum together. All these dimensions resemble closely those found in *M. douglasensis* Hung. The relative length of the various parts of the legs is also quite similar in these two species. Femora deprived of black spines on their lower side.

The general appearance of brachypterous specimens of *M. amoena* Uhl. seems to be exactly the same as that of *M. douglasensis* Hung. An examination of the male genital segments and gonapophyses of topotypical specimens of *M. amoena* Uhl. would be of great interest.

Length: brachypt. ♀♀ 2—2,1 mm., macropt. ♀♀ (to apex of membrane) 2,25 mm.

The specimens which I had before me for examination were from the following localities: macropt. specimens Grenada (Brit. Mus., U. S. N. M.), brachypt. specimens St. Vincent, coll. H. H. Smith (Brit. Mus.).

EXPLANTATION OF FIGURES.

Pl. I, fig. 1.	<i>M. mulsanti bisignata</i> Uhl.	♂	White Plains, N. Y. Gonapophysis. $\times 185$.
" " "	2. " " " "	"	Douglas Co., Kans. Idem.
" " "	3. " " " "	"	Saanich Dist., B. C. Idem.
" " "	4. " " " "	"	Ag. Coll., Mich. Idem.
" " "	5. " " " "	"	Opelousas, La. Idem.
" " "	6. <i>M. mulsanti meridionalis</i> n. ssp.	"	Villa Ana, Arg. Rep. Idem.
" " "	7. <i>M. mulsanti caraiba</i> n. ssp.	"	St. Thomas. Idem.
" " "	8. " " " "	"	St. Vincent. Idem.
" " "	9. " " " "	"	Grenada (Type). Idem.
" " "	10. " " " "	"	Xochimilco, D. F. Idem.
" " "	11. " " " "	"	Chapultepec, Mexico, D.F. Idem.
" " "	12. " " " "	"	Patzcuaro, Mich. Idem.
" " "	13. " " " "	"	" " " "
" " "	14. " " " "	"	" " " "
" " "	15. " " " "	"	Ocotlán, Jal. Idem.
" " "	16. " " " "	"	Chapala-Guadalajara, Jal. Idem.
Pl. II	17. " " " "	"	Panama. Idem.
" " "	18. " " " "	"	Habana, Cuba. Idem.
" " "	19. <i>M. mulsanti meridionalis</i> n. ssp.	"	Villa Ana, Arg. Rep. End of abdomen from beneath. $\times 33$.
" " "	20. <i>M. mulsanti bisignata</i> Uhl.	"	Douglas Co., Kans. Idem.
" " "	21. " " " "	"	Saanich Dist., B. C. Idem.
" " "	22. <i>M. mulsanti caraiba</i> n. ssp.	"	Grenada (Type). Idem.
" " "	23. <i>M. mulsanti bisignata</i> Uhl.	"	Saanich Dist., B. C. One of the black tufts of the eighth abdominal segment. $\times 360$.
" " "	24. <i>M. mulsanti caraiba</i> n. ssp.	"	Grenada (Type). Idem.
" " "	25. <i>M. amoena</i> Uhl.	♀	brach. Head and thorax from above. $\times 33$.

STRESZCZENIE.

W uwagach niniejszych podane są dalsze wyniki badań nad amerykańskimi gatunkami rodzaju *Mesovelgia* Muls., a w szczególności nad gatunkiem *M. mulsanti* B. White. Badania te były oparte zarówno na materiałach muzealnych (należących do British Museum w Londynie, U. S. National Museum w Waszyngtonie, Magyar Nemzeti Múzeum w Budapeszcie oraz Państwowego Muzeum Zoologicznego w Warszawie), jak również na okazach zebranych na Kubie (Habana) oraz w środkowym Meksyku (Districto Federal i stany Jalisco i Michoacán) przez wycieczkę zoologiczną (T. Jaczewski i T. Wolski) zorganizowaną przez Państwowe Muzeum Zoologiczne.

Na wstępie podany jest krótki przegląd historyczny stopniowego poznawania amerykańskich gatunków rodzaju *Mesovelgia* Muls., poczem zamieszczony jest klucz do ich oznaczania (z wyłączeniem gatunku *M. amoena* Uhl., którego ♂♂ nie są dotąd poznane).

Główna część notatki poświęcona jest zmiennemu i szeroko rozmieszczonemu gatunkowi *M. mulsanti* B. White, w którego granicach zostają wyróżnione cztery podgatunki: *M. mulsanti mulsanti* B. White (dorzecze Amazonki, ♂♂ dotąd nieznanne), *M. mulsanti bisignata* Uhl. (Stany Zjednoczone i Kanada), *M. mulsanti meridionalis* n. ssp. (południowa Brazylja i Argentyna) oraz *M. mulsanti caraiba* n. ssp. (Meksyk, Panama, Kuba, wyspy Antylskie).

Na zakończenie dodane są uzupełniające szczegóły morfologiczne, dotyczące mało znanego gatunku *M. amoena* Uhl., w szczególności nieopisywanej dotąd jego formy krótkoskrzydłej, oraz wypowiedziane jest przypuszczenie o możliwej identyczności tego gatunku z opisaną później *M. douglasensis* Hung.







